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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138
Carson City, Nevada 89706

September 2, 2004

NOTICE OF DECISION

**WATER POLLUTION CONTROL PERMIT
NUMBER NEV0000020**

**Queenstake Resources USA, Inc.
Jerritt Canyon Mine – Permit Renewal**

The Nevada Division of Environmental Protection has decided to approve a renewal to Water Pollution Control Permit NEV0000020, held by Queenstake Resources USA, Inc. for the Jerritt Canyon Mine. This permit authorizes the construction, operation, and closure of approved mining facilities in Elko County. The Division has been provided with sufficient information, in accordance with Nevada Administrative Code (NAC) 445A.350 through NAC 445A.447, to assure the Division that the waters of the state will not be degraded by this operation, and that public safety and health will be protected.

The modified permit will become effective September 17, 2004. This final determination of the Administrator may be appealed to the State Environmental Commission pursuant to Nevada Revised Statute (NRS) 445A.605 and NAC 445A.407. All requests for appeals must be filed by 5:00 PM, September 12, 2004, on Form 3, with the State Environmental Commission, 333 West Nye Lane, Capitol Complex, Carson City, Nevada 89706-0851. For more information, contact Rob Kuczynski, P.E. directly at (775) 687-9441, toll free in Nevada at (800) 992-0900, extension 4670, or visit the Division website at: <http://ndep.nv.gov/bmrr/bmrr01.htm>.

Four comment letters were received during the public comment period. The first letter, dated July 22, 2004, was received from Robert Williams, Field Supervisor, Fish and

Wildlife Service, U.S. Department of the Interior. The second letter, dated August 5, 2004, was received from Mike Nannini, Chairman, Elko County Board of Commissioners. The third letter, dated August 11, 2004, was received from Steve Foree, Supervising Habitat Biologist, Nevada Department of Wildlife. The fourth letter, dated August 12, 2004, was received from Christie Whiteside, Program Associate for Great Basin Mine Watch. Division responses to the received comments are attached to this Notice of Decision.

NDEP Response to Field Supervisor, Fish and Wildlife Service (FWS) Comments Letter dated July 22, 2004 and received via surface mail on July 27, 2004

FWS COMMENT 1: “Areas disturbed by this mine are within a priority metapopulation recovery area for Lahontan Cutthroat Trout”...

NDEP RESPONSE: *NDEP-BMRR is aware of the concerns regarding the Lahontan Cutthroat Trout (LCT) population and water quality in the vicinity of the Jerritt Canyon Mine (JCM). The Nevada Department of Wildlife (NDOW) provided comments regarding this renewal (see below).*

FWS COMMENT 2: “[At] some stream sites, monitoring is only required quarterly or annually. Infrequent sampling is likely to miss periodic events when water quality may be degraded and such sampling provides only a “snapshot” in time regarding potential effects to aquatic communities.”

NDEP RESPONSE: *The existing monitoring program ensures that water quality data is recorded quarterly, which captures the snowmelt and run-off events occurring in the vicinity of the Jerritt Canyon Mine. Typically, the peak run-off event is from April through June, with declining flows occurring from July through October. Trace metal data has been collected annually for the past 10 years and this data have shown consistent and typically low to non-detect concentrations. Jerritt Canyon Mine has met the burden of proof identified in Part I.D of the Permit which allows the Permittee to “request a reduction in the number of elements and the frequency of the analyses after one year of complete monitoring based on a justification other than cost.” Additional requirements for more frequent Profile 1 analyses would be redundant.*

FWS COMMENT 3: “In addition to water quality sampling, it would be advantageous to conduct benthic invertebrate assessments. This approach would integrate the possible effects of water quality degradation over time, which would likely be missed with quarterly or annual sampling of water quality. Therefore, we recommend that benthic invertebrate assessments be conducted at each of the creek sites listed in I.D.7 and 8 in the draft permit. At the start, these assessments should be conducted at least once at each water quality monitoring site. Approximately five additional background sites away from mine impacted areas should also be sampled as reference sites for comparative purposes. Annual assessments should then be conducted at least for all sites where there is evidence that the macroinvertebrate communities are degraded.”

NDEP RESPONSE: *Macroinvertebrate surveys have been conducted in the Independence Mountains since the baseline data collection in 1979. Baseline macroinvertebrate sampling was conducted in Burns Creek, Winters Creek, Mahala Creek, Foreman Creek, Jerritt Creek, Stump Creek, and California Creek. Pursuant to the Burns Basin Environmental Assessment (EA) and Plan of Operations (POO) and the Winters Creek EA and POO, Jerritt Canyon Mine has undertaken macroinvertebrate surveys in Burns Creek, and Winters Creek through 2004. Jerritt Canyon Mine also intends to expand the macroinvertebrate survey further to include waterbodies previously not sampled.*

FWS COMMENT 4: “For sites with degraded water quality, consideration should be given to installation of continuous monitoring equipment (e.g. Hydrolabs) to record parameters such as conductivity and pH, with sampling of water quality during periods when water quality is impaired.”

NDEP RESPONSE: *Comment noted. Please see response to FWS Comment 2.*

**NDEP Response to Chairman, Elko County Board of Commissioners (ECBC)
Comments Letter dated August 5, 2004 and received via surface mail on August 16, 2004**

ECBC COMMENTS: “Elko County supports the renewal of a Water Pollution Control Permit to Queenstake Resources USA, Inc. for the Jerritt Canyon Mine. We believe this project will cause minimal impact to the area and will be in keeping with the County Commission’s position of wise multiple use of public lands. Queenstake Resources USA, Inc. has successfully provided environmentally friendly mining operations that has furnished a base for jobs and taxes in Northeastern Nevada. They have shown that they are a responsible component to our community. Queenstake Resources USA, Inc. continues to operate in compliance with applicable state and federal environmental requirements in an ever more difficult regulatory climate.”

NDEP RESPONSE: *Comments noted.*

NDEP Response to Supervising Habitat Biologist, Nevada Department of Wildlife (NDOW) Comments Letter dated August 11, 2004 and received via surface mail on August 16, 2004

NDOW COMMENT 1: “The groundwater contamination under the tailings storage facility remains a concern.”... “Impacts from mine component that have the potential to effect fish populations are a concern to our agency. The design and construction of waste rock disposal facilities in these drainages has created a situation that could impact water quality for these fish populations. We would encourage the Division of Environmental

Protection to develop plans to resolve the design problems with these waste rock disposal areas. Our suggestion would be to improve the source control for meteoric flux into the waste material.”

NDEP RESPONSE: NDEP-BMRR and JCM have been active in their efforts to ensure that contamination from the tailings impoundment and waste rock facilities is fully understood and controlled in a manner that protects waters of the state. The renewed permit contains specific limits and conditions that require progress towards these goals. JCM continues to maintain a significant focus on seepage remediation efforts and these programs will continue under the renewed permit. A brief summary of these activities is provided below:

Tailings Impoundment Seepage Remediation: The number of groundwater monitoring wells has been increased in the JCM renewed permit, in an effort to encircle the tailings impoundment and form a “monitoring halo” around the collection wells. These wells are monitored for water level and the presence and concentration of Profile I criteria constituents, with the frequency of monitoring dependent on the well location, depth to water and significance (i.e. past contamination history).

Recharge wells have been installed downgradient of the seepage collection wells to recharge (inject) clean ground water, accentuate the reverse ground water gradient, and form a protective groundwater mound. In addition, alluvial monitoring wells and tailings monitoring wells have been installed within the tailings impoundment to monitor depth and quality of the upper saturated zones immediately under the tailings impoundment.

The JCM renewed permit also contains specific language requiring an aggressive reduction of volume of water in the tailings impoundment. In an effort to further reduce the volume of seepage, solution is being removed from the pond via forced evaporation. When weather conditions permit, multiple spray devices are used. In addition, the tailings impoundment is currently being operated as a sub-aerial system to reduce the volume of solution that needs to be managed and to aid in tailings compaction. Bathymetric survey results for 2003 showed a volume reduction by approximately 15%.

Sulfate Reduction: In an effort to minimize the amount of sulfate present in the waste rock drainage, JCM proposed, in early 2002, the use of a passive sulfate reduction system. This lined system is intended to receive waters emanating from the Rock Disposal Areas (RDAs) and in the presence of sulfate reducing bacteria, reduces the sulfate present to hydrogen sulfide.

JCM first proposed the use of this passive reduction technology at the Marlboro Canyon, Gracie Canyon and Snow Canyon RDAs. NDEP-BMRR approved the use of this technology at the Marlboro Canyon facility to serve as a pilot test

facility. As a Schedule of Compliance (SOC) item, Queenstake must demonstrate the effectiveness of the passive sulfate reduction system before NDEP-BMRR will approve implementation of this technology at the Gracie Canyon and Snow Canyon RDAs. If the results from the pilot study show the passive reduction system to be ineffective, the SOC requires Queenstake to submit an alternative remediation proposal(s), which may ultimately include regrading and covering the Marlboro Canyon RDA to preclude meteoric water infiltration.

NDOW COMMENT 2: “We are concerned with the issue of long-term maintenance with passive treatment systems. It will be very important to include any maintenance and R&D estimates in any long-term treatment option for water treatment.”

NDEP RESPONSE: *With regard to the passive (sulfate) treatment system, it should be understood that this is only one of several options currently being reviewed, tested and/or evaluated. To date, the mine has completed several projects to cap and cover accessible areas of the waste rock disposal sites. JCM has committed to continue to review all opportunities to further exclude water flux through these systems. The Jerritt Canyon Mine and NDEP-BMRR are well aware of the long-term management issues, limitations and challenges associated with passive sulfate reduction systems. Jerritt Canyon Mine management believes that the “Sulfate Reduction Technology” may be necessary in long-term management of the sulfate issues. Jerritt Canyon Mine has solicited and obtained outside assistance from several experts in academia and industry and have chosen to continue further research and testing of the passive treatment system. It should be noted that a Schedule of Compliance item in WPCP NEV0000020, requires that JCM submit a final report on the performance of the Pilot Sulfate Reduction Trench by May 31, 2005. If the trench fails to achieve its performance goals, the Permittee must propose alternative remediation method(s), which may potentially include regrading and covering the Rock Disposal Areas to preclude infiltration of meteoric waters, pursuant to NAC 445A.430.*

NDOW COMMENT 3: “A secondary issue we have with the waste rock disposal facilities is the lack of revegetation on these sites”... “Our agency would be very interested in seeing the quality of the reclamation in the Jerritt Canyon area vastly improved.”

NDEP RESPONSE: *Previous agreements and reclamation requirements allowed rock-armored angle-of-repose slopes as part of the reclamation strategy. The Jerritt Canyon Mine is actively improving reclamation practices as exhibited by recent reclamation efforts at Winters Creek, Dash, and the Burns Basin haul road and infrastructure reclamation projects. JCM has committed to additional covering of an RDA to determine if a reduction in seepage can be achieved. Such effort will undoubtedly improve revegetation success.*

NDOW COMMENT 4: “Jerritt Canyon proposes to maintain the Pregnant and Wash Ponds in an unused status until final closure of the tailings pond is completed. Our

experience has shown that plastic lined ponds, either full or empty can result in wildlife mortalities.”... “We would suggest the new pond designs contain some manner for wildlife to escape from the pond when they contain solutions and when empty.”

NDEP RESPONSE: *Jerritt Canyon Mine has agreed to provide an escape path for wildlife during the temporary closure of these ponds.*

NDEP Response to Great Basin Mine Watch (GBMW) Comments Letter dated and received via e-mail on August 12, 2004

GBMW COMMENT 1: “Because many of the facilities at the Jerritt Canyon Mine were in existence before September 1, 1989, the NDEP should require additional monitoring as per NAC 445A.425.”

NDEP RESPONSE: *Monitoring requirements were carefully reviewed and updated during the renewal process. Additional monitoring wells have been added to assure that adequate coverage and frequency of the monitoring continues.*

GBMW COMMENT 2: “Discharge from waste rock dumps at the mine into surface waters, are subject to NAC 445A.228. The Jerritt Canyon Mine is subject to the requirements of the National Pollution [Discharge] Elimination System, and the NDEP should require Queenstake to apply for an NPDES permit that places strict limitations upon point sources continuing to degrade surface waters. The establishment of effluent limitations should be in accordance with NAC 445A.243. The permit should contain strict schedules of compliance as per NAC 445A.244 that would require Queenstake to take the necessary steps to bring the facility into compliance with the water quality standards and limitations.”

NDEP RESPONSE: *The NDEP Mining Regulation Program is subject to the specific water pollution control regulations promulgated under NAC 445A.350 through NAC445A.447.*

JCM is permitted as a “Zero Discharge Facility”. NDEP-BMRR requires the containment of all process fluids to prevent potential degradation of the waters of the State. The renewed WPC permit contains schedules of compliance and permit limits to expedite the return to compliance.

GBMW COMMENT 3: “NDEP should take additional steps necessary to develop TMDLs [Total Maximum Daily Loads] in the interest of addressing the ongoing degradation of waters of the state.”

NDEP RESPONSE: *TMDLs are not applicable to this permit renewal.*

GBMW COMMENT 4: “In light of the ongoing discharge from point sources at the mine site into surface water, and in keeping with NAC 445A.2275, the NDEP should require corrective action to include further reclamation efforts on this and all waste dumps determined to degrade surface water.”... “The degradation of surface water is an ongoing problem that has not been sufficiently addressed by the NDEP.”

NDEP RESPONSE: *NDEP-BMRR is aware of water quality concerns at the Jerritt Canyon Mine, many of which are complex and historic in nature. Both JCM and NDEP-BMRR are addressing these issues in an active manner and work will continue to appropriately address these issues under the renewed permit, pursuant to the schedules of compliance and permit limits established.*

GBMW COMMENT 5: “The efficacy of the Marlboro Canyon Sulfate Reduction Trench is questionable.”... “If trenches are not functioning to control sulfate loading into Jerritt Creek, the NDEP must require the operator to employ additional measures within a well-defined timeframe to address the problem.”

NDEP RESPONSE: *As stated in our response to the NDOW comments, the sulfate treatment system is only one of several options currently being reviewed, tested and/or evaluated. To date, the mine has completed several projects to cap and cover accessible areas of the waste rock disposal sites. JCM intends to continue to review all opportunities to further exclude water flux through these systems.*

NDEP-BMRR is aware of potential long-term management issues, limitations and challenges associated with passive sulfate reduction systems. As a Schedule of Compliance (SOC) item in the renewed permit, JCM must demonstrate the effectiveness of the passive sulfate reduction system and if determined to be effective, implement similar systems at other RDAs or if concluded to not meet the design objectives, JCM must implement other remediation measures.

GBMW COMMENT 6: “The draft permit calls for quarterly monitoring of springs affected by the mine to include sampling for pH, flow, arsenic, iron, alkalinity conductivity and TDS. All springs should be sampled for the full Profile I constituents.”

NDEP RESPONSE: *Trace metal data has been collected annually for the past 10 years and this data have shown consistent and typically low to non-detect concentrations in the springs. Jerritt Canyon Mine has met the burden of proof identified in Part I.D of the permit which allows the Permittee to “request a reduction in the number of elements and the frequency of the analyses after one year of complete monitoring based on a justification other than cost” and additional monitoring is not required. Note that waste rock facility seepage areas are sampled quarterly for Profile I constituents.*

GBMW COMMENT 7: “Seepage from the tailings impoundment continues to degrade groundwater. Process fluid components are present in groundwater beneath the tailings. We are concerned that NDEP is not being proactive enough in the monitoring and

remediation of the degradation. Tailings impoundment monitoring wells GW9 and GW24 show impacts attributable to tailings seepage in Second Quarter Monitoring Report...but are not included in the monitoring regime for the draft permit. Have these wells [GW9 and GW24] been converted to remediation wells?”...“In general, monitoring around tailings in [is] insufficient and should be increased to determine full extent of plume and to determine if remediation efforts are working.”...“Have all potential escape ways for process fluid from the tailings been identified?”

NDEP RESPONSE: Specific seepage management and remediation language has been incorporated into WPCP NEV0000020. Ground water monitoring wells GW-9 and GW-24 were converted in October 1997 to collection wells DPS-3E and DPW-3A. Monitoring requirements were carefully reviewed and updated during the renewal process, including additional monitoring wells, to assure that adequate coverage and frequency will continue to be achieved. Through the installation of additional monitoring wells, JCM has been able to delineate the extent of seepage beneath the tailings impoundment facility and has developed an understanding of the plume and its behavior. Combined with the recharge wells and forced evaporation of the tailings solution, monitoring well data indicates that JCM has stopped the advancement of the plume.

Additional efforts required in the permit are underway to reduce the size of the plume. The renewal permit limits tailings pond volume to quarterly and yearly target volumes, established in the 2003 Update of Tailings Storage Facility (TSF) Operating Plan dated September 19, 2003 (Attachment 5, Jerritt Canyon Project, Water Pollution Control Permit (WPCP) NEV0000020, 2003 Update). The renewal permit also requires the Tailings Facility and Seepage Collection System to be maintained in a manner such to preclude further migration of seepage and for remedial efforts to continue to ensure contraction of the overall extent of the tailings seepage.

GBMW COMMENT 8: “[W]aste rock from the Smith Mine, characterized as Potentially Acid Generating is used to fill the DASH Pit”... “All PAG waste should be fully encapsulated to prevent it from coming in contact with water.”... “The NDEP should require increased sampling of development rock and stricter handling of PAG waste.”

NDEP RESPONSE: Potential PAG waste makes up less than 1 % of development rock from the Smith Mine and is not placed in contact with any perched water. The pool of water in the DASH Pit is being eliminated by the placement of high-quality development rock from the Smith Mine, placed as pit backfill. Waste rock quality is not, nor has ever been, an issue with this pit backfill. Furthermore, the renewed permit requires a much more comprehensive and representative analysis of waste rock.

GBMW COMMENT 9: “Additional monitoring of all saturated zones should be conducted at the site of the Barren and Last Chance Pond leaks, and at the site of the Cooling Tower #2 release. If monitoring efforts show cause, additional remediation efforts should be undertaken in a well-defined timeframe.”

NDEP RESPONSE: *The Barren and Last Chance Ponds are being eliminated as part the permit renewal agreements. Significant additional ground water collection and monitoring are ongoing as a result of the Cooling Tower #2 release.*